

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
Bimal Poddar)	Examiner: Thu-Thao Havan
)	
Serial No.: 09/672954)	Group Art Unit: 2672
)	
Filed: September 29, 2000)	Docket: 884.895US1
)	
For: EFFICIENT DETECTION)	
OF TEXTURE SHARING)	
BETWEEN MULTIPLE)	
CONTEXTS)	

APPELLANT'S BRIEF ON APPEAL

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P.O. Box 1450
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Sir:

This brief is presented in support of the Notice of Appeal filed on July 26, 2004, from the final rejection of pending claims 1-24 of the above-identified patent application. The Office Action from which Appellant appeals was mailed March 24, 2004.

Please charge the requisite brief filing fee of \$340.00 to Deposit Account No. 19-0743. Please charge any required additional fees or credit overpayment to Deposit Account No. 19-0743.

Appellant respectfully requests reversal of the Examiner's rejection of pending claims 1-24.

APPELLANT’S BRIEF ON APPEAL

TABLE OF CONTENTS

1. REAL PARTY IN INTEREST	1
2. RELATED APPEALS AND INTERFERENCES.....	1
3. STATUS OF THE CLAIMS	1
4. STATUS OF THE AMENDMENTS.....	1
5. SUMMARY OF THE INVENTIVE SUBJECT MATTER.....	1
6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.....	4
7. ARGUMENT	4
1) THE APPLICABLE LAW	4
2) DISCUSSION OF THE REJECTION OF CLAIMS	7
8. CONCLUSION.....	15
APPENDIX: THE CLAIMS ON APPEAL	16

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee, Intel Corporation.

2. RELATED APPEALS AND INTERFERENCES

Appellant knows of no other appeals, interferences or judicial proceedings which will have a bearing on the Board's decision in the present appeal.

3. STATUS OF THE CLAIMS

Claims 1-24 have been finally rejected. Claims 1-24 are the subject of the present appeal.

4. STATUS OF THE AMENDMENTS

Claims 1-24 received a final rejection on March 24, 2004.

No amendments were made subsequent to the final rejection.

5. SUMMARY OF THE INVENTIVE SUBJECT MATTER

This summary is presented in compliance with the requirements of Title 37 C.F.R. § 41.37(c)(1)(v), mandating a "concise explanation of the subject matter defined in each of the independent claims involved in the appeal ..." Nothing contained in this summary is intended to change the specific language of the claims described, nor is the language of this summary to be construed so as to limit the scope of the claims in any way.

Claim 1

Claim 1 is supported in Figure 4 and in the specification *inter alia* at Page 5, Lines 19-22; Page 6, Lines 4-6, Lines 22-23; Page 7, Lines 1-10.

Figure 4 is a flowchart illustrating a technique for detecting sharing of texture between multiple contexts. The technique includes obtaining a texture usage mask for a subject texture, obtaining a subject context, and performing a logic operation to produce a resultant value. In an embodiment the logic operation might include logically ANDing the texture usage mask with the inverted context ID to produce a resultant value. Figure 4 further illustrates determining whether the subject texture is or is not being shared by determining whether the resultant value is equal to a predetermined value. In an embodiment the predetermined value is 0.

Claim 5

Claim 5 is supported in Figure 4 and supported in the specification *inter alia* at Page 6, Lines 4-6, Lines 22-23; Page 7, Lines 1-10.

Figure 4 is a flowchart illustrating a technique for detecting the sharing of texture between multiple contexts. The technique includes obtaining a texture usage mask of a subject texture, obtaining a subject context, and performing a logic operation to produce a resultant value. Figure 4 further illustrates determining whether the subject texture is or is not being shared by determining whether the resultant value is equal to a predetermined value.

Claim 9

Claim 9 is a machine-readable medium claim supported among other places in the specification at Page 2, Lines 14-19 and by passages discussed above as supporting claim 1.

Claim 13

Claim 13 is a machine-readable medium claim supported among other places in the specification at Page 2, Lines 14-19 and by passages discussed above as supporting claim 5.

Claim 17

Claim 17 is partially illustrated in Figure 4 and supported among other places in the specification at Page 5, Lines 19-22; Page 6, Lines 4-6, Lines 22-23; Page 7, Lines 1-18.

Figure 4 is a flowchart that illustrates a technique for detecting the sharing of texture between multiple contexts. The technique includes obtaining a texture usage mask of a subject texture, obtaining a subject context, and performing a logic operation to produce a resultant value. In an embodiment the logic operation might be the ANDing of the texture usage mask with the inverted context ID to produce a resultant value. Figure 4 further illustrates determining whether the subject texture is or is not being shared by determining whether the resultant value is equal to a predetermined value. In an embodiment when a context stops using a texture, its context ID bit in the corresponding texture usage mask must be reset. This is done by clearing the context ID bit in the texture usage mask, attaching a new texture to the texture unit and looping over all of the texture units in a context.

Claim 19

Claim 19 is supported among other places in the specification at Page 4, Lines 17-18; Page 8, Lines 5-11; and Page 7, Lines 13-16.

The passages describe a system that includes multiple texture units for a context, a texture memory to store textures, a system memory to store textures, and a processor. In an embodiment

when a context stops using a texture, the processor must reset the corresponding texture usage mask. This is done by clearing the context ID bit in the texture usage mask, attaching a new texture to the texture unit and looping over all of the texture units in a context.

Claim 22

Claim 22 is supported in Figure 2 Blocks 201, 205, 207, and 215 and among other places in the specification, at Page 2, Lines 11-19; Page 8, Lines 5-7; Page 6, Lines 22-23; and Page 7, Lines 1-10;

In Figure 2, a system is illustrated that shows a storage device, a memory system, and a processor. The specification describes that the memory stores textures. The specification also describes that to detect whether a texture is shared, a processor retrieves a texture usage mask for the texture and performs a logical operation of the texture usage mask and a context identifier.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-24 are patentable under 35 USC § 103(a) over Lawless et al. (U.S. 5,818,469; hereinafter referred to as Lawless) in view of Grossman et al. (U.S. 5,230,039; hereinafter referred to as Grossman).

7. ARGUMENT

1) The Applicable Law

According to *M.P.E.P.* § 2141, which cites *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986), the following tenets of patent law must

be adhered to when applying 35 U.S.C. § 103. First, the claimed invention must be considered as a whole. Second, the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. Third, the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention. Fourth, obviousness is determined using a reasonable expectation of success standard. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. *M.P.E.P.* § 2141 (citing *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966)).

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). The references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the

claimed invention to have been obvious in light of the teachings of the references. *M.P.E.P.* § 2142 (citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)). In considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *M.P.E.P.* § 2144.01 (citing *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)). However, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *M.P.E.P.* § 2143.01 (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

In order to take into account the inferences which one skilled in the art would reasonably make, the examiner must ascertain what would have been obvious to one of ordinary skill in the art at the time the invention was made, and not to the inventor, a judge, a layman, those skilled in remote arts, or to geniuses in the art at hand. *M.P.E.P.* § 2141.03 (citing *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 218 USPQ 865 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984)).

The examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of Appellant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon Appellant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2141.03.

2) Discussion of the rejection of claims

Claims 1-24 were rejected under 35 USC § 103(a) as being unpatentable over Lawless et al. (U.S. 5,818,469; hereinafter referred to as Lawless) in view of Grossman et al. (U.S. 5,230,039; hereinafter referred to as Grossman). Appellant respectfully traverses this rejection because the Office Action has not established a *prima facie* case of obviousness regarding Claims 1-24.

I. Lawless and Grossman do not teach every element

In order to establish a *prima facie* case of obviousness, the references must teach or suggest all the claim elements. See *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). The present invention relates to efficient detection of texture sharing between multiple contexts in a graphics programming interface. Grossman relates to a graphical display system for specifying and controlling a display range in which a specified form of texture mapping is applied or suppressed. Lawless relates to a system in which a master thread receives commands from a graphics application and assembles the commands into workgroups.

Claims 1, 9, 22, and 23

Appellant cannot find in Lawless and/or Grossman the claimed “obtaining a texture usage mask of a subject texture”. As part of maintaining the rejection, the Examiner states at Page 3 of the Final Office Action that “Lawless teaches a method of ... obtaining a texture usage mask of a

subject texture (col.3, line 5 to col 6, line 26). However, Appellant was unable to find a teaching or suggestion of a “texture usage mask” in the cited passage or anywhere else in Lawless.

Additionally, Appellant was unable to find any passage in Grossman that teaches or suggests a “texture usage mask.” Therefore, Appellant respectfully submits that the combination of Lawless and Grossman does not teach or suggest “obtaining a texture usage mask of a subject texture,” as recited in claims 1 and 9.

Appellant cannot find in Lawless and/or Grossman the claimed “obtaining an inverted context ID of a subject context.” The Examiner indicates at Page 4 of the Final Office Action that Lawless’ attribute change being flagged (See Lawless at Column 3, Line 5 to Column 6, Line 26) teaches the claimed “obtaining an inverted context ID of a subject context.” Appellant respectfully submits that the Examiner has mischaracterized Lawless. Lawless’ “attribute defines a state [of an object] such as linestyle, color, surface texture, material or matrices.” (Insertion added.) Lawless at Column 3, Lines 4-5. In the passage cited in the Final Office Action, Lawless describes flagging an attribute change command for changing an attribute (i.e., linestyle, color, surface texture, etc...) of an object. Appellant respectfully submits that Lawless’ attribute change command is not a context and, as such, Lawless’ attribute change command being flagged does not teach or suggest a “context ID of a subject context.” Appellant can find no passage in Lawless that teaches or suggests the claimed “context ID of a subject context.” (Emphasis added.) Additionally, Appellant can find no passage in Grossman that teaches or suggests the claimed “context ID of a subject context.” Appellant respectfully submits that because the combination of Lawless and Grossman does not teach or suggest a “context ID of a subject

context,” the combination certainly does not teach the claimed “obtaining an inverted context ID of a subject context.” (Emphasis added.)

Appellant cannot find in Lawless and/or Grossman the claimed “ANDing the texture usage mask of the subject texture with the inverted context ID of the subject context to produce a resultant value.” (Emphasis added.) Appellant respectfully submits that since the combination of Lawless and Grossman does not teach or suggest either the claimed “texture usage mask” or the claimed “inverted context ID”, it cannot teach or suggest “ANDing the texture usage mask ... with the inverted context ID.”

The Examiner asserts in the Final Office Action at Page 4 that Grossman “indicates that it’s well known to have texture mapping wherein a mask value is compared to determine if the resultant value is being equal to 0 or not based on the texture being used.” Appellant respectfully submits that the Examiner has mischaracterized Grossman because Grossman is not using a mask value to determine whether a texture is being used by a particular context. Instead, Grossman’s mask value is being used to determine whether a texture will be applied to all pixels of an object. For at least the reasons set forth above, Appellant respectfully submits that the combination of Lawless and Grossman does not teach or suggest the claimed “ANDing the texture usage mask of the subject texture with the inverted context ID of the subject context to produce a resultant value.”

Appellant cannot find in Lawless and/or Grossman the claimed “detecting that the subject texture is not being shared by another context.” In maintaining the rejection, the Examiner asserts that Lawless teaches the claimed texture sharing by teaching that “the command is

received by the master thread and a determination is made as to whether an attribute change (i.e. texture sharing) is required for the particular command received.” Office Action at Page 3, Last Paragraph, Lines 3-6. However, Appellant respectfully submits that determining whether an attribute change is required for the particular command is not the claimed “subject texture is being shared by another context.” However, even if it were, Appellant cannot find any passage in Lawless that teaches or suggests determining whether an attribute change is required for a particular command received. Lawless teaches its master thread doing many things regarding the attribute change. For example Lawless states, “For each attribute command that is received, the master thread 105 updates the state of the master graphics context 106, flags the particular change, and places the command in a workgroup.” Lawless at Column 3, Lines 57-61. However, Appellant cannot find a passage that teaches or suggests determining whether an attribute change is required for a particular command received.

Additionally, Appellant can find no passage in Grossman that teaches or suggests the claimed “detecting that the subject texture is not being shared by another context.” Appellant respectfully submits that the combination of Lawless and Grossman does not teach or suggest the claimed “detecting that the subject texture is not being shared by another context.”

Claims 2, 6, 10, and 14

Appellant cannot find in Lawless and/or Grossman the claimed “revising the texture usage mask of a subject texture prior to the subject texture being used by another context.” Without being able to find the above noted feature, Appellant certainly cannot find the claimed “revising the texture usage mask of a subject texture prior to the subject texture being used by

another context by bitwise ORing the texture usage mask with a context ID of the another context to produce a resultant new texture usage mask for the subject texture.” As part of maintaining the rejection, the Examiner states in the Final Office Action at Page 5 that Grossman at Column 10 Line 52 to Col 13 line 20 discloses the cited feature. However, Appellant cannot find any description of the claimed “revising the texture usage mask of a subject texture prior to the subject texture being used by another context” in Grossman.

Claims 3, 4, 7, 8, 11, 12, 15, and 16

Appellant cannot find in Lawless and/or Grossman the claimed “revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context.” Without being able to find the above noted feature, Appellant certainly cannot find the claimed “revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by deleting a context ID of the particular context from the texture usage mask to produce a resultant new texture usage mask for the subject texture.” As part of maintaining the rejection, the Examiner states in the Final Office Action at Page 5 that Grossman at Column 10 Lines 17-50 discloses the cited feature. However, Appellant cannot find any description of the claimed “revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context.”

Claims 5, 13, and 17

Appellant cannot find in cannot find in Lawless and/or Grossman the claimed “performing a first logic operation with the texture usage mask of the subject texture and the context ID of the subject context to produce a resultant value.” As part of maintaining the

rejection, the Examiner states at Page 3 of the Final Office Action at Page 4 that Grossman “indicates that it’s well known to have texture mapping wherein a mask value is compared to determine if the resultant value is being equal to 0 or not based on the texture being used.”

Appellant respectfully submits that the Examiner has mischaracterized Grossman because Grossman is not using a mask value to determine whether a texture is being used by a particular context. Instead, Grossman’s mask value is being used to determine whether a texture will be applied to all pixels of an object. For at least the reasons set forth above, Appellant respectfully submits that the combination of Lawless and Grossman does not teach or suggest the claimed “performing a first logic operation with the texture usage mask of the subject texture and the context ID of the subject context to produce a resultant value.”

Additionally, Appellant cannot find in Lawless and/or Grossman the claimed “obtaining a texture usage mask of a subject texture”, “obtaining a a context ID of a subject context”, or “detecting that the subject texture is not being shared by another context with the subject context upon the resultant value being equal to a first predetermined value and detecting that the subject texture is being shared by another context upon the resultant value being equal to a second predetermined value which is different from the first predetermined value.” As part of maintaining the rejection, the Examiner states at Page 3 of the Final Office Action that “Lawless teaches a method of ... obtaining a texture usage mask of a subject texture (col.3, line 5 to col 6, line 26). For reasons noted above in the discussion of claims 1 and 9, Appellant respectfully traverses this assertion.

Claims 18, 20, and 24

Appellant cannot find in cannot find in Lawless and/or Grossman the claimed “paging out a texture from a texture memory based on a type of logical operation of the identification of the contexts processing the texture and the texture usage mask of the texture, wherein the type of logical operation is the same as the first type of logical operation.” As part of maintaining the rejection, the Examiner states at Page 5 of the Final Office Action that Grossman discloses the claimed feature in Grossman at col.10 line 52 to col. However, Appellant cannot find anything in the cited passage that discloses the claimed feature.

Claims 19 and 21

The Final Office Action listed independent claim 19 in its rejection of the other independent claims. (See Final Office Action at Page 3, final two paragraphs.) However, the Final Office Action did not discuss any of the elements of claim 19 and did not indicate where the elements of claim 19 are found in the Examiner’s combination of Lawless and Grossman. In particular, Appellant respectfully submits that the Final Office Action does not point to any passage in Lawless or Grossman that teaches or suggests the claimed “number of texture units to process a number of subject textures, wherein a texture unit of the number of texture units is associated with one of a number of contexts”, “texture memory to store at least one of the number of subject textures”, or “system memory to store at least one of the number of subject textures.” Appellant respectfully submits that the Office Action also does not point out any passage in Lawless or Grossman that teaches or suggests the claimed operations to, “clear the identification of the context in the texture usage mask associated with the subject texture”, “attach a different subject texture to the one of the number of texture units that completed the

processing of the texture” and “set the identification of the context in the texture usage mask for the subject textures being processed by the number of texture units in the context.” Therefore, Appellant respectfully submits that the combination of Lawless and Grossman does not teach or suggest each and every element of independent claim 19.

II. There is no motivation to combine Lawless and Grossman

As noted in Applicant’s response to the Office Action mailed November 27, 2002, the Office Action does not make out a *prima facie* case of obviousness because the Office Action does not provide a suggestion or motivation to combine the cited references. The Final Office Action does not point to a passage from the Lawless or Grossman references that suggests the combination. Moreover, the Office Action does not look to knowledge generally available to one of ordinary skill in the art as a teaching or suggestion to combine Lawless and Grossman. Therefore, Appellant respectfully submits that the rejection to claims 1-24 over Lawless in view of Grossman is improper and should be withdrawn.

8. CONCLUSION

It is respectfully submitted that the claimed invention is not unpatentable in view of the cited art. It is respectfully submitted that claims 1-24 should therefore be allowed. Reversal of the Examiner's rejections of claims 1-24 is respectfully requested.

Respectfully submitted,

Bimal Poddar

By his Representatives,

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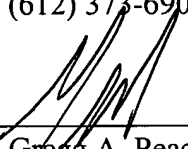
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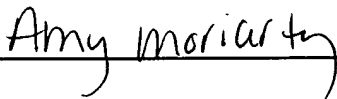
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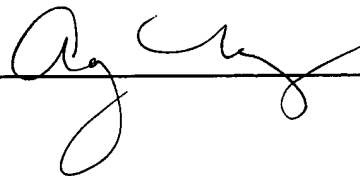
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APPENDIX: THE CLAIMS ON APPEAL

1. (Previously Presented) A method comprising:
 - obtaining a texture usage mask of a subject texture;
 - obtaining an inverted context ID of a subject context;
 - ANDing the texture usage mask of the subject texture with the inverted context ID of the subject context to produce a resultant value; and
 - detecting that the subject texture is not being shared by another context with the subject context upon the resultant value being equal to 0 and detecting that the subject texture is being shared by another context with the subject context upon the resultant value not being equal to 0.
2. (Original) The method of claim 1, further comprising:
 - revising the texture usage mask of a subject texture prior to the subject texture being used by another context by bitwise ORing the texture usage mask with a context ID of the another context to produce a resultant new texture usage mask for the subject texture.
3. (Original) The method of claim 1, further comprising:
 - revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by deleting a context ID of the particular context from the texture usage mask to produce a resultant new texture usage mask for the subject texture.
4. (Original) The method of claim 2, further comprising:
 - revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by deleting a context ID of the particular context from the texture usage mask to produce a resultant new texture usage mask for the subject texture.
5. (Previously Presented) A method comprising:

obtaining a texture usage mask of a subject texture;
obtaining a context ID of a subject context;
performing a first logic operation with the texture usage mask of the subject texture and the context ID of the subject context to produce a resultant value; and
detecting that the subject texture is not being shared by another context with the subject context upon the resultant value being equal to a first predetermined value and detecting that the subject texture is being shared by another context upon the resultant value being equal to a second predetermined value which is different from the first predetermined value.

6. (Original) The method of claim 5, further comprising:

revising the texture usage mask of a subject texture prior to the subject texture being used by another context by performing a second logic operation with the texture usage mask and a context ID of the another context to produce a resultant new texture usage mask for the subject texture.

7. (Original) The method of claim 5, further comprising:

revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by performing a third logic operation with the texture usage mask and a context ID of the particular context to produce a resultant new texture usage mask for the subject texture.

8. (Original) The method of claim 7, further comprising:

revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by performing a third logic operation with the texture usage mask and a context ID of the particular context to produce a resultant new texture usage mask for the subject texture.

9. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method comprising:

obtaining a texture usage mask of a subject texture;

obtaining an inverted context ID of a subject context;

ANDing the texture usage mask of the subject texture with the inverted context ID of the subject context to produce a resultant value; and

detecting that the subject texture is not being shared by another context with the subject context upon the resultant value being equal to 0 and detecting that the subject texture is being shared by another context with the subject context upon the resultant value not being equal to 0.

10. (Original) The program storage device of claim 9, the method further comprising:

revising the texture usage mask of a subject texture prior to the subject texture being used by another context by bitwise ORing the texture usage mask with a context ID of the another context to produce a resultant new texture usage mask for the subject texture.

11. (Original) The program storage device of claim 9, the method further comprising:

revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by deleting a context ID of the particular context from the texture usage mask to produce a resultant new texture usage mask for the subject texture.

12. (Original) The program storage device of claim 11, the method further comprising:

revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by deleting a context ID of the particular context from the texture usage mask to produce a resultant new texture usage mask for the subject texture.

13. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method comprising:

- obtaining a texture usage mask of a subject texture;
- obtaining a context ID of a subject context;
- performing a first logic operation with the texture usage mask of the subject texture and the context ID of the subject context to produce a resultant value; and
- detecting that the subject texture is not being shared by another context with the subject context upon the resultant value being equal to a first predetermined value and detecting that the subject texture is being shared by another context upon the resultant value being equal to a second predetermined value which is different from the first predetermined value.

14. (Original) The program storage device of claim 13, the method further comprising:

- revising the texture usage mask of a subject texture prior to the subject texture being used by another context by performing a second logic operation with the texture usage mask and a context ID of the another context to produce a resultant new texture usage mask for the subject texture.

15. (Original) The program storage device of claim 13, the method further comprising:

- revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by performing a third logic operation with the texture usage mask and a context ID of the particular context to produce a resultant new texture usage mask for the subject texture.

16. (Original) The program storage device of claim 15, the method further comprising:

revising the texture usage mask of a subject texture upon the subject texture no longer being used by a particular context by performing a third logic operation with the texture usage mask and a context ID of the particular context to produce a resultant new texture usage mask for the subject texture.

17. (Previously Presented) A method comprising:

- retrieving a texture usage mask of a texture;
- retrieving an inverted context ID of a context;
- performing a first type of logical operation of the texture usage mask of the texture with the inverted context ID of the context;
- detecting whether the texture is being shared by another context with the context based on the first type of logical operation; and
- performing a clear operation, an attach operation and a set operation when one of a number of texture units associated with a context completes the processing of a texture, wherein the clear operation includes clearing the identification of the context in the texture usage mask associated with the texture, the attach operation to include attaching a different texture to the one of the number of texture units that completed the processing of the texture and wherein the set operation includes setting the identification of the context in the texture usage mask for the textures being processed by the number of texture units in the context.

18. (Previously Presented) The method of claim 17 comprising paging out a texture from a texture memory based on a type of logical operation of the identification of the contexts processing the texture and the texture usage mask of the texture, wherein the type of logical operation is the same as the first type of logical operation.

19. (Previously Presented) A system comprising:

a number of texture units to process a number of subject textures, wherein a texture unit of the number of texture units is associated with one of a number of contexts;

a texture memory to store at least one of the number of subject textures;

a system memory to store at least one of the number of subject textures; and

a processor to execute instructions that include the following operations when one of the number of texture units for a context completes the processing of a texture,

clear the identification of the context in the texture usage mask associated with the subject texture;

attach a different subject texture to the one of the number of texture units that completed the processing of the texture; and

set the identification of the context in the texture usage mask for the subject textures being processed by the number of texture units in the context.

20. (Previously Presented) The system of claim 19 comprising a texture manager to page out a texture from the texture memory to the system memory based on a logical operation of an identification of the contexts to process the texture and the texture usage mask of the texture.

21. (Previously Presented) The system of claim 19, wherein the logical operation is an AND operation.

22. (Previously Presented) A system comprising:

a storage device to store texture usage marks of a number of textures and to store context identifiers for a number of contexts;

a random access memory to store at least a part of the number of textures;

a processor to retrieve a texture usage mark for one of the number of textures and one of the context identifiers for one of the number of contexts from the storage device, wherein the

processor is to detect whether a texture is shared among at least two different units associated with at least two different contexts or shared among at least two different units within a same context based on a logical operation of the retrieved texture usage mark and the retrieved context identifier.

23. (Previously Presented) The system of claim 22, wherein the logical operation is an AND operation.

24. (Previously Presented) The system of claim 22 comprising,
a texture memory to store at least a part of the number of textures; and
a texture manager to page out a texture from the texture memory to the random access memory based on the logical operation of the retrieved texture usage mark and the retrieved context identifier.